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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/681,753	05/31/2001	James Norman Cawse	RD-28169	6423

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EXAMINER
CLOW, LORI A

ART UNIT	PAPER NUMBER
1631	8

DATE MAILED: 06/17/2003

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No.	Applicant(s)	
	09/681,753	CAWSE, JAMES NORMAN	
	Examiner	Art Unit	
	Lori A. Clow, Ph.D.	1631	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *31 March 2003* .

2a)☐ This action is **FINAL**. 2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1-34* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *1-34* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☐ The drawing(s) filed on _____ is/are: a)☐ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

11)☐ The proposed drawing correction filed on _____ is: a)☐ approved b)☐ disapproved by the Examiner.

If approved, corrected drawings are required in reply to this Office action.

12)☐ The oath or declaration is objected to by the Examiner.

Priority under 35 U.S.C. §§ 119 and 120

13)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☐ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____ .

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

14)☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application).

a) ☐ The translation of the foreign language provisional application has been received.

15)☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☐ Information Disclosure Statement(s) (PTO-1449) Paper No(s) _____ .
4) ☐ Interview Summary (PTO-413) Paper No(s). _____ .
5) ☐ Notice of Informal Patent Application (PTO-152)
6) ☐ Other:

DETAILED ACTION

Applicant's arguments filed 31 March 2003 have been fully considered. Rejections and/or objections not reiterated from previous office actions are hereby withdrawn. The following rejections and/or objections are either reiterated or newly applied. They constitute the complete set presently being applied to the instant application.

Claims 1 to 34 are currently pending.

Claim Rejections - 35 USC § 112

Claims 10 and 11 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

Claim 10 is directed to a model that is a visual organizational aid. It is not clear what is meant by visual organizational aid and no meaning is assigned in the instant specification. Does applicant mean that the model is displayed on a computer screen?

Claim 11 is directed to a model that is a virtual construct resident. It is not clear what is meant by virtual construct method and no meaning is assigned in the instant specification. Does applicant mean that the model is constructed within a computer?

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

The factual inquiries set forth in *Graham* **v.** *John Deere Co.*, 383 U.S. 1, 148 USPQ 459 (1966), that are applied for establishing a background for determining obviousness under 35 U.S.C. 103(a) are summarized as follows:

1. Determining the scope and contents of the prior art.
2. Ascertaining the differences between the prior art and the claims at issue.
3. Resolving the level of ordinary skill in the pertinent art.
4. Considering objective evidence present in the application indicating obviousness or nonobviousness.

This application currently names joint inventors. In considering patentability of the claims under 35 U.S.C. 103(a), the examiner presumes that the subject matter of the various claims was commonly owned at the time any inventions covered therein were made absent any evidence to the contrary. Applicant is advised of the obligation under 37 CFR 1.56 to point out the inventor and invention dates of each claim that was not commonly owned at the time a later invention was made in order for the examiner to consider the applicability of 35 U.S.C. 103(c) and potential 35 U.S.C. 102(e), (f) or (g) prior art under 35 U.S.C. 103(a).

Claims 1-9 and 13-34 are rejected under 35 U.S.C. 103(a) as being unpatentable over US 5,901,069 (Agrafiotis et al.), in view of Reddington et al (Science (1998) Vol. 280, pages 1735-1737).

Agrafiotis et al. describes a computer-based, iterative process for generating chemical entities with defined physical chemical and/or bioactive properties (see abstract). Specifically, a synthesis protocol generator is used to identify, under computer control, reagents which when combined with one another will produce compounds which are predicted (by structure-activity

models) to exhibit improved activity properties, test the validity of the current structure-activity models, and discriminate between various structure-activity models (column 6, lines 36-44). The synthesis protocol generator classifies compounds which posses the desired activity/properties as new leads. After selection of factors, the experiment is run such that it may be adjusted based upon parameters that include assigning values to properties attained and adjusting the experiment for further iterations based upon adjustments (see column 6, lines 46-67; see also, column 13, lines 31-59 pertaining to predictions). (Claim 1)

A preferable embodiment of the invention is one in which the protocol generator assigns a rating factor to each compound based upon how closely the compound's activity/properties match a desired profile. The rating factors may be numerical (as is true in the instant application) or linguistic values. Furthermore, these values are represented on a sliding scale from high to low values which correspond to the activity/property profile (column 16, lines 39-54). (Claims 1-3, 5-9) In addition to the above embodiments meeting the limitations of said claims, the inputs of the disclosed invention are user determined (column 7, line 25-27). (Claims 2, 4). The invention is performed by a chemical synthesis robot which gains its instructions from the synthesis protocol generator. The robot is capable of mix-and-split solid phase chemistry and performs selective microscale synthesis of the specific combinatorial library on a reaction plate (column 8, lines 31-56).

Agrafiotis et al. do not teach a combinatorial screening method in parallel, as in claim 13, nor do they teach specific use of inorganic catalysts (although the invention is useful for a myriad of applications as acknowledged at column 5, lines 51-61). However, Reddington et al. do disclose a combinatorial screening method to select the best catalysts (page 1735, column 2,

lines 4-14 and page 1736, column 1, lines 17-21), including ternary array combinations and parallel screening (page 1735, column 3, lines 27-29). Reddington et al. describe the need for well designed arrays, some of which contain complexes such as ruthenium and platinum, meeting the limitation of claim 21, 24, and 25 (page 1736, column 3, lines 8-10). They also mention a halide composition at page 1736, column 3, line 9, as in claim 23. While not mentioning palladium (claim 22), it would be obvious to substitute any of the Group VIII B metals in this method. Furthermore, the method includes the use of fluorescent indicators, as in claim 17 (tags).

One of ordinary skill in the art at the time of the invention would have been motivated to combine the teachings of Agrafiotis et al., who suggest that this method is applicable to many applications such as, generating chemical compounds having desired properties that may include paints, finishes, plastics, scents, flavorings, drugs, surfactants, etc. (column 5, lines 51-61), with the methods of Reddington et al, who teach inorganic catalysis and parallel processing.

Claim 12 is rejected under 35 U.S.C. 103(a) as being unpatentable over Agrafiotis et al. in view of Cawse et al. (CR&D Combinatorial Chemistry Program. *Combinatorial Search and Experimental Design Techniques* (May 19-21, 1999, Schenectady, New York).

As stated above, Agrafiotis teaches a computer-based, iterative process for generating chemical entities with defined physical chemical and/or bioactive properties (see abstract). Agrafiotis et al. do not teach a specific model to define an experimental space, however, Cawse et al. do teach the Latin Square model for combinatorial design on page 12 of the Combinatorial Search and Design Techniques slide presentation. It would have been prima facie obvious to use

the Latin Square Modeling method in the generation of a synthesis model in Agrafiotis et al. to improve design runs.

No claims are allowed.

Inquiries

Papers related to this application may be submitted to Technical Center 1600 by facsimile transmission. Papers should be faxed to Technical Center 1600 via the PTO Fax Center located in Crystal Mall 1. The faxing of such papers must conform with the notices published in the Official Gazette, 1096 OG 30 (November 15, 1988), 1156 OG 61 (November 16, 1993), and 1157 OG 94 (December 28, 1993) (See 37 CFR § 1.6(d)). The CM1 Fax Center number is either (703) 308-4242, or (703) 308-4028.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Lori A. Clow, Ph.D., whose telephone number is (703) 306-5439. The examiner can normally be reached on Monday-Friday from 10am to 6pm.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Michael P. Woodward, Ph.D., can be reached on (703) 308-4028.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the Legal Instrument Examiner, Tina Plunkett, whose telephone number is (703) 305-3524, or to the Technical Center receptionist whose telephone number is (703) 308-0196.

MICHAEL P. WOODWARD
SUPERVISORY PATENT EXAMINER
TECHNOLOGY CENTER 1600

June 13, 2003

Lori A. Clow, Ph.D.
Art Unit 1631